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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/441,958 11/17/99 SUMIYA

K PM-265013

EXAMINER

MM91/0907

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UNIT

ART UNIT

PAPER NUMBER

2878

DATE MAILED:

09/07/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Applicant No.	Applicant(s)	
	09/441,958	SUMIYA ET AL.	
	Examiner	Art Unit	
	Thanh X Luu	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 8, it is unclear from its given context that the lower sensitivity of the central photodetector is not an inherent feature of the photodetector but rather the central photodetector is "desensitized" upon readout of its signal.

Regarding claim 1, line 23, it is unclear if Applicant intended to claim --the second photodetector-- and not "the first photodetector" since the cooperative detection of the first photodetector and the central photodetector is already claimed above. Secondly, it is unclear how a first photodetector being disposed on a second region is used to detect quantity of light entering from a side of a first region. Likewise, it is unclear how a second photodetector being disposed on a first region is used to detect quantity of light entering from a side of a second region.

Regarding claim 2, it is unclear that a lowered gain is caused by an amplifier and not because of decreased light reception.

Regarding claim 11, it is unclear from its given context what the phrase “which is a rear side of the vehicle” and “with respect to the signal processing circuit” modifies or refers to. Furthermore, it is unclear what Applicant intended to claim.

Regarding claim 12, it is unclear from its given context what Applicant intended to claim with the terms “first protrusions extend on the first region with a first width from the axis together with the plurality of second protrusions” and “second protrusions extend on the second region with a second width from the axis together with the plurality of first protrusions.” It is also unclear how first and second protrusions can extend in both directions.

Regarding claim 14, it is unclear from its given context what the phrase “protrusions are alternately disposed one another” means.

Claims 3-7, 9, 10 and 15 are indefinite by virtue of their dependency on an indefinite claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1, 2 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Osawa (U.S. Patent 5,072,105).

Regarding claim 1, as understood, Osawa discloses (see Figures 1, 3 and 5) a sensor for detecting a quantity of light, comprising: a housing (42) having a axis along a direction in which light enters the sensor when an azimuth is zero, the axis dividing a surface of the housing into a first region and a second region (driver and passenger side); a first photodetector (29) disposed on the first region (driver side) of the housing; a second photodetector (30) disposed on the second region (passenger side) of the housing; a central photodetector (31) disposed on the first and second region of the housing across the axis having a sensitivity lower than those of the first and second photodetector (see Figure 3); and a shading member (compartment of the car) disposed above the housing and having a light transmittance part (windshield) for transmitting light toward at least one of the photodetectors, wherein: inherently because of the disposition of the photodetectors, the first photodetector and the central photodetector cooperatively detect a first quantity of light entering the sensor from a side of the first region; and the second photodetector and the central photodetector cooperatively detect a second quantity of light entering the sensor from a side of the second region (see also column 7, lines 11-14).

Regarding claims 8 and 9, in addition to the rejection as set forth above regarding claim 1, as understood, Ogawa further discloses (see Figures 1, 3 and 5) the sensor detecting light incident on a vehicle and each photodetector outputting its own corresponding signal. Ogawa also discloses (see Figure 2) a signal processing circuit

for determining the quantity of light (incident intensity) based on the signals as claimed (see also column 7, lines 11-14) disposed at a front side of the vehicle (under the hood).

Regarding claim 2, as understood, Osawa discloses (see Figure 2) a signal processing circuit for processing signals from the photodetectors. Furthermore, since the central photodetector is between two sides, the gain of the signal from the central photodetector is inherently smaller than the gain of the signals from the first and second photodetectors. That is, if light enters from a first region then the gain for the first photodetector would be higher than the gain from the central photodetector. Likewise, if light enters from a second region, the gain of for the second photodetector would be higher than the gain from the central photodetector.

Regarding claims 6 and 7, Ogawa further discloses (see Figure 1) the photodetectors being equidistant from a specific point on the axis and the shape of the central photodetector is symmetric with respect to the axis.

6. Claims 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Dierschke et al. (U.S. Patent 5,567,976).

Regarding claims 12-15, as understood, Dierschke et al. disclose (see Figure 4) a sensor for detecting a quantity of light, comprising: a housing (not shown) having an axis along a direction in which light enters the sensor when an azimuth is zero, the axis dividing a surface of the housing into a first region (right side) and second region (left side); a first photodetector (35) for detecting a first quantity of light entering the sensor from a side of the first region, the first photodetector having a first main portion (base of triangular sections) entirely disposed on the second region and a plurality of first

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protrusions (points of the triangular sections) protruding from the first main portion toward the first region across the axis; and a second photodetector (37) for detecting a second quantity of light entering the sensor from a side of the second region, the second photodetector having a second main portion entirely disposed on the first region and having a plurality of second protrusions protruding from the second main portion toward the second region across the axis, wherein: the plurality of first protrusions extend on the first region having a first width at the axis; and the plurality of second protrusions extend on the second region having a second width at the axis. Dierschke et al. further disclose (see Figure 4) the widths are approximately equal to each other, the protrusions are alternately disposed and form zigzag patterns.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3-5, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osawa.

Regarding claim 3, Osawa discloses only one central photodetector. However, the number of central photodetector is a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to

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include an additional central photodetector in the apparatus of Osawa for added redundancy.

Regarding claims 4, 5 and 10, Osawa discloses (see Figure 1) the photodetectors form a square or diamond shape having space all around. Osawa does not specifically disclose an annular shape or the processing circuit disposed at the space around the sensor. However, that particular shape of the sensor and the area in which the processing circuit is disposed are a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide an annular shape in the device of Osawa to improve detection by more closely fitting the photodetectors to one another. Further, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a notch or space for the processing circuit on the sensor to obtain a more compact and modular device.

Regarding claim 11, as understood, Osawa disclose the sensor disposed at a front side of the vehicle. Osawa does not specifically disclose the sensor at a rear side of the vehicle. However, the front or rearward disposition of the sensor is a matter of design choice and require only routine skill in the art to change. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the sensor on a rear side of the vehicle of Osawa to detect light from the rear of the car and improve environment conditions for backseat passengers.

R I vant R ferences

9. The other references Yoshimi et al. (U.S. Patent 5,181,654) and Trocellier et al. (U.S. Patent 4,315,690) cited on PTO-892, Notice of References Cited, are made of record because they all disclose a similar sensor arrangement.


Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham, can be reached on (703) 308-4090. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
September 6, 2001


Que T. Le
Primary Examiner